



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/868,845	09/07/2001	Juergen Rolf Mueller	0179-0170P	6312
2292	7590	02/10/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			STOCK JR, GORDON J	
PO BOX 747			ART UNIT	PAPER NUMBER
FALLS CHURCH, VA 22040-0747			2877	

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/868,845	MUELLER, JUERGEN ROLF	
	Examiner	Art Unit	
	Gordon J Stock	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-64 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23,25-35,37,40-42 and 44-46 is/are allowed.
- 6) ☒ Claim(s) 24,38,39,47,48,52,54,57,59,61,62 and 64 is/are rejected.
- 7) ☒ Claim(s) 36,43,49-51,53,55,56,58,60,63 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The specification is objected to for the following: page 3 lines 1-2 refer to previously cancelled claims. Correction required.

Claim Objections

2. **Claims 36, 43, 57, 61, and 64** are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Specifically, the claims refer to an intended use, "for use in the research" it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQ F.2d 1647 (1987).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claim 52** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the

Art Unit: 2877

explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, **claim 52** recites the broad recitation movement of the auxiliary focus, and the claim also recites "preferably periodical" which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. **Claims 38, 39, 59, 61, 62, 64** are rejected under 35 U.S.C. 102(b) as being anticipated by **Nakata et al. (5,062,715)**.

As for **claims 38, 39, 59, and 62** Nakata in method and apparatus for detecting internal defects of a semiconductor device discloses the following: at least one first radiation source as well as at least one device being confocal with an objective and at least one detector (Fig. 2: 44, 46, 38, 75, 78); at least a second radiation source (Fig. 2: 65); a second detector (Fig. 2: 75, 78); at least one device for positioning the measuring volume and auxiliary focus relative to the

Art Unit: 2877

substrate, x-y stage (Fig. 2: 40); a device for relative positioning the auxiliary focus relative to the measuring volume, a z-stage and autofocus system (Fig. 2: 41, 540); a first collimating optic (Fig. 2: 49); a second collimating optic (Fig. 2: 69).

As for **claims 61 and 64**, Nakata discloses everything as above (see claims 38 and 39). In addition, Nakata discloses examining a material, a semiconductor device (Fig. 2: 42).

Claim Rejections - 35 USC § 103

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. **Claims 24, 47, 48, 54, 57** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Scherübl et al. (WO 98/44375)** in view of **Galbraith et al. (4,512,659)**.

As to **claims 24, 57**, Scherübl in a confocal microscope device discloses the following: scanning with a measuring volume using at least one apparatus being confocal with a first radiation source and at least one objective thereby receiving measuring values for characterization of a defect on semiconductor substrate; substantially maintaining its position; generating during the scanning step an auxiliary focus by means of at least two secondary radiation sources and an optic which is the same objective whereas the auxiliary foci are at different spatial relations to the sample due to differing focal points through chromatic aberration ; collimating the three radiation sources prior to hitting 3 and 4 of Fig. 8; detecting a retroreflection from all three foci by a detector having a confocal arranged diaphragm; generating the auxiliary focus and retroreflection is used for measuring the position of the interface and adjusting positions of the foci relative to measuring volume through autofocus (abstract, Fig. 8, pages 12-17 of translation). As for a support the figures of Scherübl disclose

Art Unit: 2877

just an object plane; however, the object is scanned through the use of an x-y table (page 13, lines 20-21 of translation). As for the sample being investigated, a wafer is being inspected for defects and profile imaging may be used in confocal imaging (pages 2-4 of translation).

However, he is silent concerning identifying entities arranged on the wafer. Galbraith teaches using a calibration wafer with entities that represent defects on it for calibration of the inspection device (col. 2, lines 25-40). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have the inspection device investigate a calibration wafer with scattering elements representing defects arranged on the wafer in order to calibrate the inspection device to set resolution.

As for **claim 47**, Scherubl in view of Galbraith discloses everything as above (see claim 24). In addition, Scherubl discloses that each wavelength has a different extension of volume (Fig. 8: red, green, blue extensions into sample).

As for **claim 48**, Scherubl in view of Galbraith discloses everything as above (see claim 24). In addition, Scherubl discloses that each wavelength uses a different part of the common objective through refraction and chromatic aberration (Fig. 8: 7 and 8 and separation of three wavelengths).

As for **claim 57**, Scherubl in view of Galbraith discloses everything as above (see claim 24). In addition, Galbraith states that the defects scatter light (col. 2, lines 25-30).

Allowable Subject Matter

10. **Claims 23, 25-35, 37, 40-42, 44, 46** are allowed.

Claims 36 and 43 would be allowable if amended to overcome the objection above.

Claims 49, 50-51, 53, 55, 56, 58, 60, and 63 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 52 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

As to **claim 23**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method of optically detecting at least one entity generating an auxiliary focus by means of at least one second radiation source and a second objective, in combination with the rest of the limitations of **claims 23, 25-36, 44, and 46**.

As to **claim 37**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an apparatus for optically detecting at least one entity at least a second radiation source as well as at least one further device comprising a second objective, in combination with the rest of the limitations of **claims 37, 40-43**.

As to **claim 49**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method of optically detecting at least one entity obtaining the small extension of the confocal detected volume by a diaphragm having a smaller opening than a confocal arranged diaphragm for the detection of the measuring volume, in combination with the rest of the limitations of **claim 49**.

As to **claim 50**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method of optically detecting at least one entity the position of the auxiliary

focus is readjusted in a manner that the intensity of the retroreflection reaches its maximum, in combination with the rest of the limitations of **claim 50**.

As to **claim 51**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method of optically detecting at least one entity the auxiliary focus is moved both laterally and axially to the optical axis, in combination with the rest of the limitations of **claim 51**.

As to **claim 53**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method of optically detecting at least one entity the retroreflection is detected by means of at least two detectors, in combination with the rest of the limitations of **claim 53**.

As to **claim 55**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method of optically detecting at least one entity the group consists of polymeric gel, a polymeric particle built up from inorganic material, a vesicular structure, a cell, a bacterium, and a virus, in combination with the rest of the limitations of **claim 55**.

As to **claim 56**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method of optically detecting at least one entity the entities selected are separated during or after the scanning process from the other entities and/or substrates, in combination with the rest of the limitations of **claim 56**.

As to **claim 58**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method of optically detecting at least one entity the auxiliary focus is moved periodically substantially along the optical axis, in combination with the rest of the limitations of **claim 58**.

Art Unit: 2877

As to **claim 60**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an apparatus means for variation of the convergence of bundles of rays that are focused by the respective objective for generation of the auxiliary focus and the measuring volume, in combination with the rest of the limitations of **claim 60**.

As to **claim 63**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an apparatus means for variation of the convergence of bundles of rays that are focused by the respective objective for generation of the auxiliary focus and the measuring volume, in combination with the rest of the limitations of **claim 63**.

Response to Arguments

11. Applicant's arguments, see Remarks, filed November 5, 2004, with respect to the rejections of claims 23, 25, 29-37, 39-41, 43, 44, 46 under 35 U.S.C. 103(a) have been fully considered and are persuasive. The rejection of these claims under 35 U.S.C. 103(a) has been withdrawn.

12. Applicant's arguments with respect to the claims 24, 38, 45 have been considered but are moot in view of the new ground(s) of rejection. However, Examiner will address argument of regarding Scherubl not having the limitation in claim 24 of "measuring the position of the measuring volume" this limitation is not in claim 24, but the "indirectly positioning the measuring volume" Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Art Unit: 2877

Fax/Telephone Numbers

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and

2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (703) 872-9306

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (571) 272-2431.

The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached at 571-272-2800 ext 77.

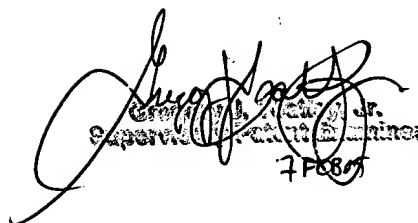
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private Pair system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit: 2877

gs

February 5, 2005

Zandra V. Smith
Primary Examiner
Art Unit 2877


Zandra V. Smith
Primary Examiner
Art Unit 2877
7 FEB 05